



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246

3

**D3391-025**  
**Job Sheet 185028**



**Part No:** D3391-025

**Job Qty:** 1 ea

**Part Name:** Aft Tube Assembly



**Part Weight:** 0 lbs

**Status:** New

**Priority:** Medium

**Job Created:** 10/22/18

**Job Tracking No:**

**Due Date:** 11/23/18

**Created By:** Jesse White

**Type:** SOLD

**Description:**

**Note:** DWG REV J SHEETS 9,10,11 IPP Rev B 06-02-07 ECN773 dwg rev. D EC IPP Rev:C 06-03-28 Update  
Manuf. Instructions JLM IPP rev D 07.03.20 revF dwg EC IPP rev E 07.11.07 rev G dwg ecn 1053p EC verified  
by: DD IPP Rev:F 07-11-13 ECN 1056 DD verified by: EC IPP Rev:G 08-09-10 revH as per dwg DD verified  
by:EC IPP Rev:H 11.11.14 AS PER REV.I DD verified by:JLM

**Ship Via:**

### Bill of Materials



**Container No: S122061**



**Part: D3391 - 025**

**Job No: 185028**

**Serial No/Batch: S122061**

**Revision:**

**Inspector:**

**Exp Date:**

**Instructions: Various STC's**

DART Aerospace Ltd.  
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www.dartaerospace.com

Date: 10/28/18



## Job Routing

| Op No | Operation              | Qty   | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off            |
|-------|------------------------|-------|------------|----------|-----------|---------|-----------------------|-----------|---------------------|
|       |                        |       |            |          | Setup Hrs | Run Hrs | Workcenter / Supplier | Lead Time |                     |
| 90    | Start up Operation     | 1 Ea  |            | 11/23/18 | 0.00      | 0.00    | Start Up Crosstubes   |           | MD 18-10-28         |
| 100   | Mori Seiki             | 1 pcs |            | 11/23/18 | 2.49      | 4.17    | Mori Seiki TL-40      |           | MD 18-10-28         |
| 110   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC2-1                 |           | MD 18-10-28         |
| 112   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC5                   |           | 38                  |
| 120   | CNC Vertical Machining | 1 pcs |            | 11/23/18 | 0.00      | 2.63    | HAAS1-3               |           | DTP 18-11-28        |
| 130   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC2 Machining-2       |           | DTP 18-11-28        |
| 140   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC8 Machining-2       |           | Kt 18-11-28         |
| 150   | Skid tubes             | 1 pcs |            | 11/23/18 | 0.00      | 1.03    | Skid tubes-4          |           | MGR                 |
| 160   | CNC Bend Skid tubes    | 1 pcs |            | 11/23/18 | 0.00      | 1.33    | CNC Bend Skid tube    |           | DE                  |
| 170   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC5                   |           | DE                  |
| 180   | Skid tubes             | 1 pcs |            | 11/23/18 | 0.00      | 1.03    | Skid tubes-4          |           | MGR DAS             |
| 190   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC5                   |           | 38                  |
| 200   | HandFinish             | 1 pcs |            | 11/23/18 | 0.00      | 0.58    | HandFinish1           |           | D.R. DAS 18-11-29   |
| 210   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC7-2                 |           | 60                  |
| 220   | Skid tubes             | 1 pcs |            | 11/23/18 | 0.00      | 1.41    | Skid tubes-4          |           | 9-89 MGR            |
| 230   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC5                   |           | 38                  |
| 235   | HandFinish             | 1 pcs |            | 11/23/18 | 0.00      | 0.58    | HandFinish2           |           | DR 18-11-3          |
| 240   | SprayPaint             | 1 pcs |            | 11/23/18 | 0.00      | 0.25    | Spray Paint           |           | AS 18-12-2          |
| 242   | Outsource              | 1 pcs |            | 11/23/18 |           |         | ATE003-VC             |           | 11/18               |
| 250   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC14                  |           | HL 18-12-03         |
| 260   | HandFinish             | 1 pcs |            | 11/23/18 | 0.00      | 0.58    | HandFinish4           |           | HL 18-12-03         |
| 270   | QC                     | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | QC5                   |           | DE DAS 2018 68      |
| 280   | Packaging              | 1 pcs |            | 11/23/18 | 0.00      | 0.00    | Packaging3-           |           | DEC 03 2018 69 9-89 |
| 290   | QC21-SA                | 1 Ea  |            | 11/23/18 | 0.00      | 0.00    | QC21                  |           | DEC 03 2018 21      |

Part Op 100 - Turn as per Folio FA599 Rev: J & Dwg D3391 Rev: J \*\*\*ensure steady rest is turning true\*\*\* REMOVE  
 Descriptions: STEADY REST AND MACHINIG MARKS\*\*\*\*

120 - 1-Machine as per Folio FA 599 Rev: J & Dwg D3391 Rev: J

140 - \*\*\*INSPECT INSIDE BORE\*\*\*

150 - 1-Drill ( PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

160 - Form as per Dwg D3391 Using Bend Prog 3391025

180 - 1-Open Aft cap pilot hole to .208" as per Dwg D3391 2-Drill float bag holes using DT8809 as per Dwg D3391 (Holes marked "A" Only. 3-Drill wearplate holes as per Dwg D3391 using DT8878 (Mid Tube) & DT8217 Wearplate Jig . \*\*\*\*Do Not Open To Finished Size\*\*\*\* 4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes. 5-Open wearplate holes to 0.297" and c'bore as per dwg D3391 6-Open up all float bag holes to 0.328" and c'sink as per Dwg D3391. 8- Scribe batch # on fwd end

220 - 1- Instal spacers as per dwg D3391 A/R Magnabond 6398 Batch: exp. date : cure time 12hrs as per QSI0015 2- Grind crossbolts flush 3- Back drill using #9 drill 4- Touchup Magnabond 5- Deburr

235 - AND REALODINE AS PER PAR09-043

240 - PRIME AS PER DWG AND QSI005 4.2.1.3.3 Prime 138876 Paint 138778

260 - 1-Install inserts as per Dwg D3391 2-Install Aft Cap as per Dwg D3391 A/ R Sikaflex-241/-291

Sikaflex expiry date: 11/13/2018 3- INSTALL WEARPLATES AS PER DWG

290 - 5- Detail DD, open (5) forward wearplate holes 0.375", then use DT10247 and drill holes for nutplates and c'sink. 6- Open wearplate holes to 0.297" and c'bore as per dwg D3391. \*\*\*SIX FARTHEST AFT HOLES ONLY\*\*\* 7-Open up all float bag holes to 0.328" and c'sink as per Dwg D3391. 8-Deburr 9- Scribe batch # on fwd end



04 -  
38  
00

DAS  
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DAS  
00  
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B139427

## Job BOM

006803

| Part / Item   | Component Name     | Quantity       | Operation             | Container |
|---------------|--------------------|----------------|-----------------------|-----------|
| D6014-090     | Aluminum Extrusion | 1 Ea (1 ea)    | 90-Start up Operation |           |
| D3670-4-200   | Bushing            | 4 Ea (4 ea)    | 220-Skidtubes         |           |
| ALS4-1032-130 | Rivnut             | 8 Ea (8 ea)    | 260-HandFinish        |           |
| ALS4-1032-225 | Rivnut             | 4 Ea (4 ea)    | 260-HandFinish        |           |
| AN3C4A        | Bolt               | 6 Ea (6 ea)    | 260-HandFinish        |           |
| AN3C5A        | Bolt               | 4 Ea (4 ea)    | 260-HandFinish        |           |
| D2646         | Aft Cap            | 1 Ea (1 ea)    | 260-HandFinish        |           |
| D3672-1       | Washer, Phenolic   | 2 Ea (2 ea)    | 260-HandFinish        |           |
| D4095-047     | Wearpad Aft        | 1 Ea (1 ea)    | 260-HandFinish        |           |
| D4095-049     | Wearpad Aft        | 1 Ea (1 ea)    | 260-HandFinish        |           |
| MS20601-AD4W3 | Rivet              | 12 Ea (12 ea)  | 260-HandFinish        |           |
| MS20601-AD4W7 | Rivet              | 8 Ea (8 ea) +2 | 260-HandFinish        |           |
| MS21075L5     | Nut Plate          | 10 Ea (10 ea)  | 260-HandFinish        |           |
| NAS1149C0332R | Washer             | 10 Ea (10 ea)  | 260-HandFinish        |           |

5021404 (1K) SCB1002 (3x)  
 5007279  
 5058138  
 5095228  
 5095211  
 M1163254-102  
 F164808  
 5072811  
 5063239  
 5092687  
 M137148  
 5093759  
 5089465

## Job Allocations

| Operation             | Component Part | Required | Inventory | Allocated |
|-----------------------|----------------|----------|-----------|-----------|
| 90-Start up Operation | D6014-090      | 1        | 9         | 0         |
| 220-Skidtubes         | D3670-4-200    | 4        | 43        | 0         |
| 260-HandFinish        | ALS4-1032-130  | 8        | 11,813    | 0         |
|                       | ALS4-1032-225  | 4        | 1,815     | 0         |
|                       | AN3C4A         | 6        | 2,094     | 0         |
|                       | AN3C5A         | 4        | 1,694     | 0         |
|                       | D2646          | 1        | 63        | 0         |
|                       | D3672-1        | 2        | 956       | 0         |
|                       | D4095-047      | 1        | 21        | 0         |
|                       | D4095-049      | 1        | 30        | 0         |
|                       | MS20601-AD4W3  | 12       | 624       | 0         |
|                       | MS20601-AD4W7  | 8        | 121       | 0         |
|                       | MS21075L5      | 10       | 304       | 0         |
|                       | NAS1149C0332R  | 10       | 3,690     | 0         |

## Part Specifications

Specifications could not be found.

Plex 10/22/18 9:10 AM dart.white.jesse







③

|                                          |               |                             |
|------------------------------------------|---------------|-----------------------------|
| <b>DART AEROSPACE LTD</b>                |               | <b>Work Order:</b> 185028   |
| <b>Description:</b> Float Skidtube (412) |               | <b>Part Number:</b> D3391-3 |
| <b>Inspection Dwg:</b> D3391             | <b>Rev:</b> J | <b>Page 1 of 1</b>          |

### FIRST ARTICLE INSPECTION CHECKLIST

| Drawing Dimension    | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|----------------------|-----------|------------------|--------|--------|----------------------|----------|
| <b>Lathe Section</b> |           |                  |        |        |                      |          |
| 14.000               | +/-0.010  | 14.000           | ✓      |        | Tape                 |          |
| 3.500                | +/-0.010  | 3.497            | ✓      |        | CNC-08               |          |
| Ø3.200               | +/-0.010  | 3.201            | ✓      |        | CNC-05               |          |
| Ø3.750               | +/-0.010  | 3.748            | ✓      |        | CNC-05               |          |
| 30° x 0.060 chamfer  | +/-0.010  | .069             | ✓      |        | CNC-08               |          |
| 88.93                | +/-0.030  | 88.92            | ✓      |        | Tape                 |          |

|                        |                         |
|------------------------|-------------------------|
| <b>Measured by:</b> MD | <b>Date:</b> 2018-10-26 |
| <b>Audited by:</b>     | <b>Date:</b>            |

|                     |               |        |   |  |      |  |
|---------------------|---------------|--------|---|--|------|--|
| <b>HAAS Section</b> |               |        |   |  |      |  |
| 1.526               | +0.000/-0.030 | 1.506  | ✓ |  | Vern |  |
| 7.500               | +/-0.010      | 7.498  | ✓ |  | Vern |  |
| 27.750              | +/-0.010      | 27.750 | ✓ |  | Dial |  |
| 31.750              | +/-0.010      | 31.750 | ✓ |  | "    |  |
| 35.250              | +/-0.010      | 35.250 | ✓ |  | "    |  |
| 3.300               | +/-0.010      | 3.2975 | ✓ |  | Vern |  |
| 0.200               | +/-0.010      | 0.201  | ✓ |  | "    |  |
| 3.520               | +/-0.010      | 3.515  | ✓ |  | M.M. |  |
| 0.687               | +0.010/-0.000 | 0.689  | ✓ |  | Vern |  |
| R0.062              | +/-0.010      | 0.062  | ✓ |  | R.G  |  |
| Ø0.484              | +0.005/-0.001 | 0.485  | ✓ |  | G.P. |  |

|                       |                         |
|-----------------------|-------------------------|
| <b>Measured by:</b>   | <b>Date:</b>            |
| <b>Audited by:</b> KJ | <b>Date:</b> 2018-11-28 |

| Rev | Date     | Change                                     | Revised by | Approved |
|-----|----------|--------------------------------------------|------------|----------|
| A   | 06.04.24 | New Issue P/O D3391-015/-025               | KJ/JLM     |          |
| B   | 06.06.19 | Dwg revision update                        | KJ/JLM     |          |
| C   | 07.04.20 | Ø0.208 dimension removed                   | KJ/JLM     |          |
| D   | 07.09.06 | 0.400 dimension removed                    | KJ/JLM     |          |
| E   | 07.11.23 | Dwg Rev. updated                           | KJ/EC/DD   |          |
| F   | 09.04.27 | Dimensions updated per Rev H and NCR09-028 | KJ/JLM     |          |
| G   | 09.11.16 | Dimension 0.200 removed                    | KJ         |          |
| H   | 11.06.21 | Dimension 44.995 removed                   | KJ         |          |
| I   | 12.05.15 | Dwg Rev updated                            | KJ         |          |
| J   | 12.05.23 | Dimension updated                          | KJ         |          |
| K   | 12.10.15 | 88.93 dimension removed                    | KJ         |          |
| L   | 12.11.28 | 88.93 dimension added                      | KJ         |          |
| M   | 16.06.23 | Dimensions updated per Rev J               | KJ         |          |





# D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY<br>-041 | QTY<br>-043 | PART NUMBER   | DESCRIPTION             |
|-------------|-------------|---------------|-------------------------|
| X           | X           | D3391-041     | FLOAT SKIDTUBE ASSEMBLY |
|             |             | D3391-043     | FLOAT SKIDTUBE ASSEMBLY |
| 1           |             | D3391-011     | FWD TUBE ASSEMBLY       |
| 1           |             | D3391-013     | MID TUBE ASSEMBLY       |
| 1           |             | D3391-015     | AFT TUBE ASSEMBLY       |
|             | 1           | D3391-021     | FWD TUBE ASSEMBLY       |
|             | 1           | D3391-023     | MID TUBE ASSEMBLY       |
|             | 1           | D3391-025     | AFT TUBE ASSEMBLY       |
| 2           | 2           | D3591-1       | BUSHING                 |
| 4           |             | D3672-3       | WASHER                  |
| 1           | 1           | D4095-041     | WEARSHOE                |
| 1           | 1           | D4095-043     | WEARSHOE                |
| 1           | 1           | D4095-045     | WEARSHOE                |
| 1           | 1           | D4095-047     | WEARPAD                 |
| 1           | 1           | D4095-049     | WEARPAD                 |
| 1           | 1           | D4095-051     | WEARSHOE                |
| 24          | 24          | AN3C4A        | BOLT                    |
| 4           | 4           | AN3C6A        | BOLT                    |
| 10          | 10          | AN5C7A        | BOLT                    |
| 28          | 28          | NAS1149C0332R | WASHER                  |
| 10          | 10          | NAS1149C0532R | WASHER                  |
| 4           |             | MS27038C4-12  | SCREW                   |
| 4           |             | NAS1149C0432R | WASHER                  |

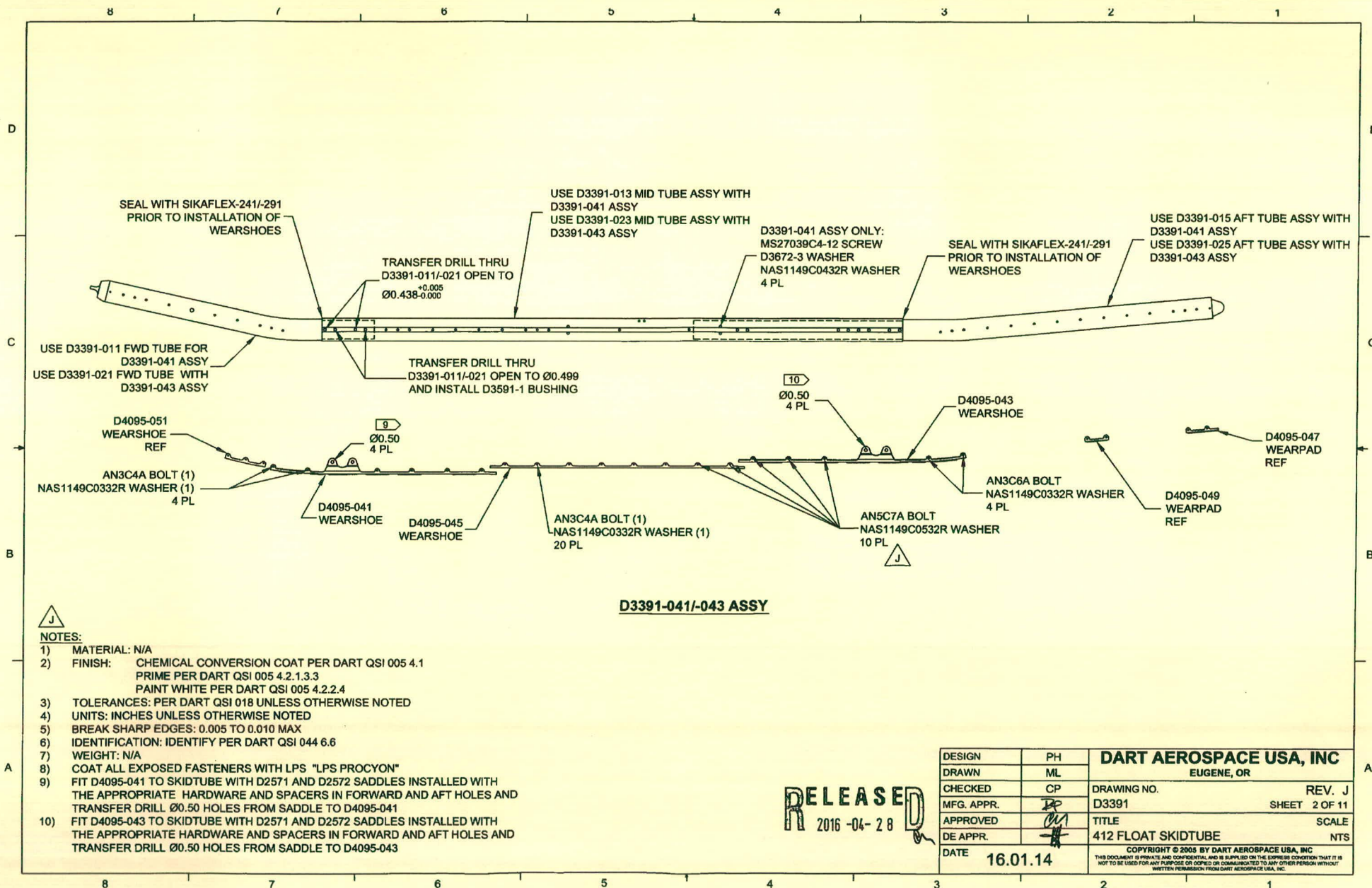


|            |                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                    |               |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| J          | INCORPORATED DSI 8733, REFORMAT DRAWING CHANGED CBORE DEPTH (ZN D2-8, D2-9), REVISED TABLES, REPLACED POWDER COAT WITH PAINT                                                                                                                                                         | ML                                                                                                                                                                                                                                                                                 | 16.01.14      |
| I          | REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A8-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8                      | XDF                                                                                                                                                                                                                                                                                | 11.10.13      |
| H          | DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074) | AJS                                                                                                                                                                                                                                                                                | 08.08.20      |
| G          | REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY                                                                                                                                                              | DC                                                                                                                                                                                                                                                                                 | 07.07.31      |
| F          | ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021                                                                                                                                                                                                                             | PH                                                                                                                                                                                                                                                                                 | 07.01.18      |
| E          | CHANGE TOLERANCE, EASE MANUFACTURE                                                                                                                                                                                                                                                   | PH                                                                                                                                                                                                                                                                                 | 06.04.25      |
| D          | UPDATE TOLERANCE, CHANGE HOLE SIZE                                                                                                                                                                                                                                                   | PH                                                                                                                                                                                                                                                                                 | 06.01.23      |
| C          | LENGTHEN AFT EXTENSION                                                                                                                                                                                                                                                               | PH                                                                                                                                                                                                                                                                                 | 05.09.27      |
| B          | DRAWING UPDATES                                                                                                                                                                                                                                                                      | PH                                                                                                                                                                                                                                                                                 | 05.06.10      |
| A          | NEW ISSUE                                                                                                                                                                                                                                                                            | PH                                                                                                                                                                                                                                                                                 | 05.02.07      |
| REV        | DESCRIPTION                                                                                                                                                                                                                                                                          | BY                                                                                                                                                                                                                                                                                 | DATE          |
| DESIGN     | PH                                                                                                                                                                                                                                                                                   | DART AEROSPACE USA, INC                                                                                                                                                                                                                                                            |               |
| DRAWN      | ML                                                                                                                                                                                                                                                                                   | EUGENE, OR                                                                                                                                                                                                                                                                         |               |
| CHECKED    | CP                                                                                                                                                                                                                                                                                   | DRAWING NO.                                                                                                                                                                                                                                                                        | REV. J        |
| MFG. APPR. | CP                                                                                                                                                                                                                                                                                   | D3391                                                                                                                                                                                                                                                                              | SHEET 1 OF 11 |
| APPROVED   | CP                                                                                                                                                                                                                                                                                   | TITLE                                                                                                                                                                                                                                                                              | SCALE         |
| DE APPR.   | CP                                                                                                                                                                                                                                                                                   | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                                 | NTS           |
| DATE       | 16.01.14                                                                                                                                                                                                                                                                             | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC. |               |

RELEASED  
2016-04-28  
ECN 16-516

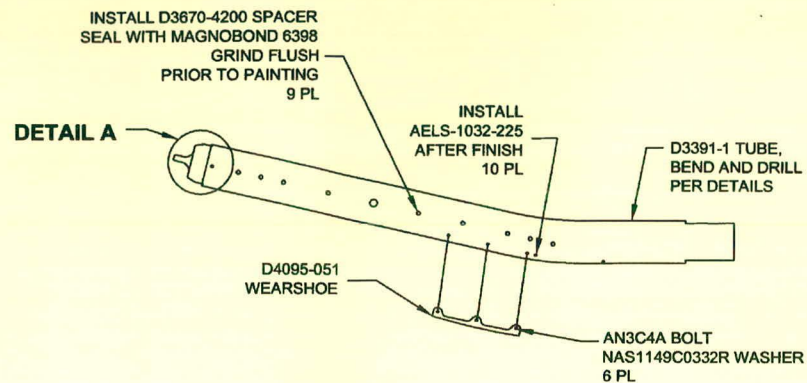




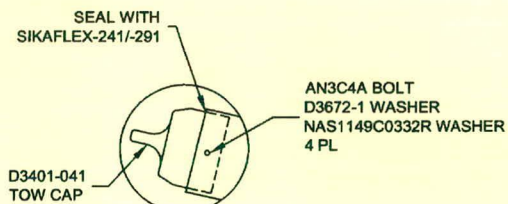




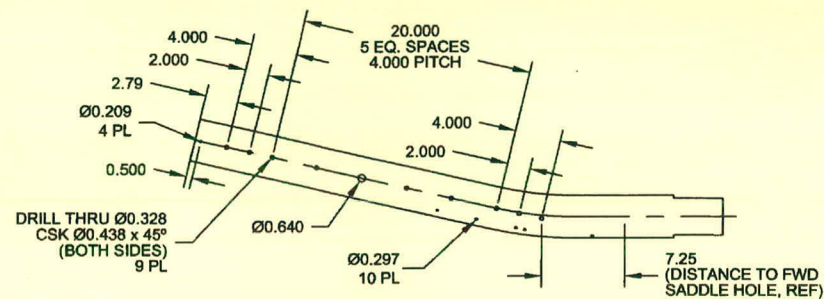




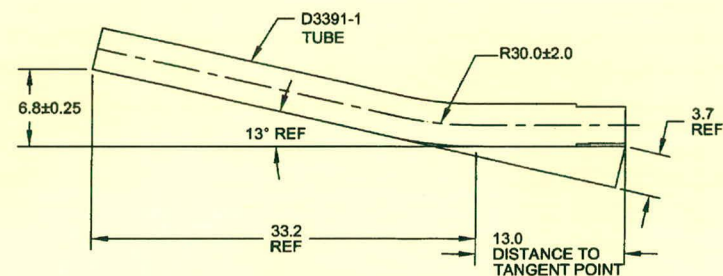
**D3391-011 FWD TUBE ASSEMBLY**  
ASSEMBLY DETAIL



**DETAIL A**  
SCALE 2X



**D3391-011 DRILLING DETAIL**



**D3391-011 BENDING DETAIL**  
(MAKE FROM D3391-1)

**D3391-011 FWD TUBE ASSEMBLY PARTS LIST**

| QTY -011 | PART NUMBER   | DESCRIPTION       |
|----------|---------------|-------------------|
| X        | D3391-011     | FWD TUBE ASSEMBLY |
| 1        | D3391-1       | TUBE              |
| 1        | D3401-041     | TOW CAP           |
| 9        | D3670-4200    | SPACER            |
| 4        | D3672-1       | WASHER            |
| 1        | D4095-051     | WEARSHOE          |
| 10       | AELS-1032-225 | INSERT            |
| 10       | AN3C4A        | BOLT              |
| 10       | NAS1149C0332R | WASHER            |

**RELEASED**  
2016-04-28

|                                                                                                                                                                                                                                     |                                                                                       |                                             |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------|---------------|
| DESIGN                                                                                                                                                                                                                              | PH                                                                                    | <b>DART AEROSPACE USA, INC</b>              |               |
| DRAWN                                                                                                                                                                                                                               | ML                                                                                    | EUGENE, OR                                  |               |
| CHECKED                                                                                                                                                                                                                             | CP                                                                                    | DRAWING NO.                                 | REV. J        |
| MFG. APPR.                                                                                                                                                                                                                          |  | D3391                                       | SHEET 3 OF 11 |
| APPROVED                                                                                                                                                                                                                            |  | TITLE                                       | SCALE         |
| DE APPR.                                                                                                                                                                                                                            |                                                                                       | 412 FLOAT SKIDTUBE                          | NTS           |
| DATE                                                                                                                                                                                                                                | 16.01.14                                                                              | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC |               |
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INSTALL D3670-4200 SPACER  
SEAL WITH MAGNOBOND 6398  
GRIND FLUSH  
PRIOR TO PAINTING  
4 PL

# DETAIL B



INSTALL  
AELS-1032-225  
AFTER FINISH  
10 PL

D4095-051  
WEARSHOE

AN3C4A BOLT  
NAS1149C0332R WASHER  
6 PL

## D3391-021 FWD TUBE ASSEMBLY ASSEMBLY DETAIL

SEAL WITH  
SIKAFLEX-241/291

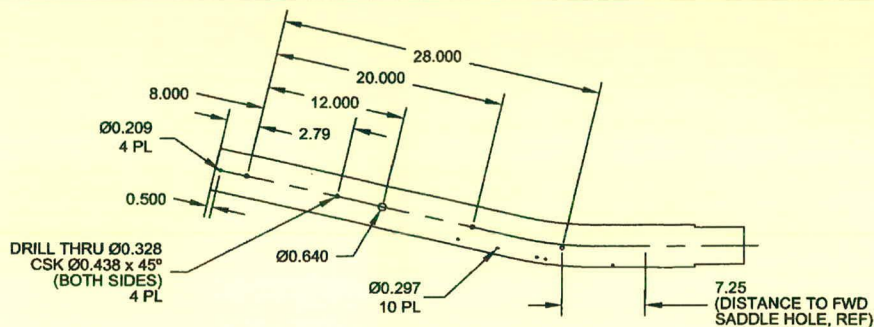
D3401-041  
TOW CAP

## DETAIL B SCALE 2X

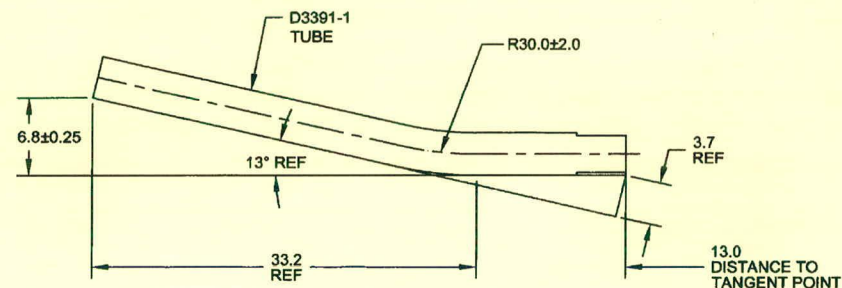
AN3C4A BOLT  
D3672-1 WASHER  
NAS1149C0332R WASHER  
4 PL

### D3391-021 FWD TUBE ASSEMBLY PARTS LIST

| QTY<br>-021 | PART NUMBER   | DESCRIPTION       |
|-------------|---------------|-------------------|
| X           | D3391-021     | FWD TUBE ASSEMBLY |
| 1           | D3391-1       | TUBE              |
| 1           | D3401-041     | TOW CAP           |
| 4           | D3670-4200    | SPACER            |
| 4           | D3672-1       | WASHER            |
| 1           | D4095-051     | WEARSHOE          |
| 10          | AELS-1032-225 | INSERT            |
| 10          | AN3C4A        | BOLT              |
| 10          | NAS1149C0332R | WASHER            |



### D3391-021 DRILLING DETAIL



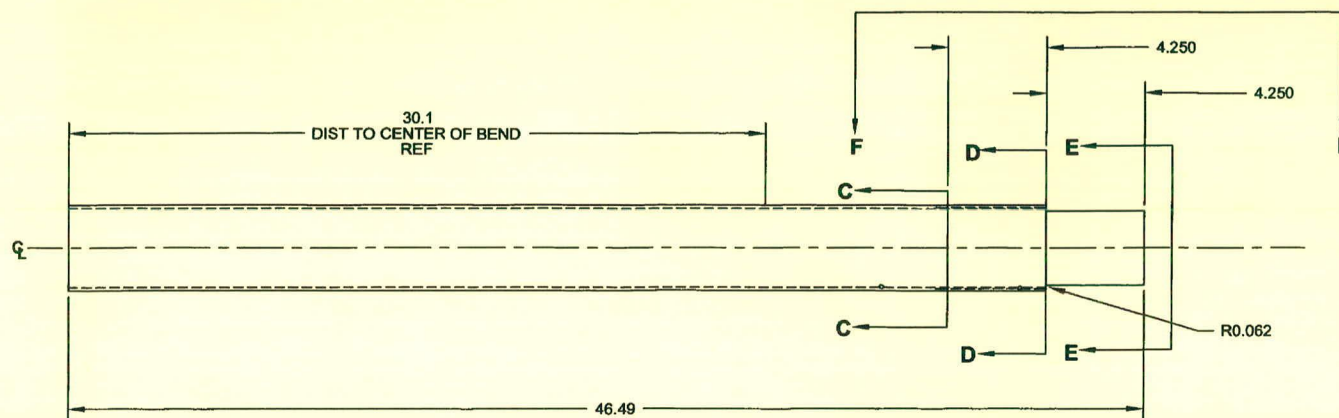
### D3391-021 BENDING DETAIL (MAKE FROM D3391-1)

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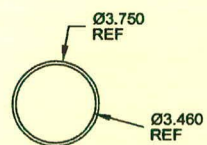
|                                                                                                                                                                                                                                     |          |                                             |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------|---------------|
| DESIGN                                                                                                                                                                                                                              | PH       | DART AEROSPACE USA, INC                     |               |
| DRAWN                                                                                                                                                                                                                               | ML       | EUGENE, OR                                  |               |
| CHECKED                                                                                                                                                                                                                             | CP       | DRAWING NO.                                 | REV. J        |
| MFG. APPR.                                                                                                                                                                                                                          | DR       | D3391                                       | SHEET 4 OF 11 |
| APPROVED                                                                                                                                                                                                                            | DR       | TITLE                                       | SCALE         |
| DE APPR.                                                                                                                                                                                                                            | DR       | 412 FLOAT SKIDTUBE                          | NTS           |
| DATE                                                                                                                                                                                                                                | 16.01.14 | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC |               |
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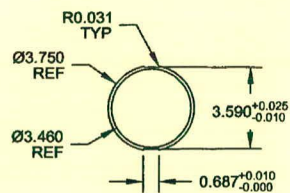




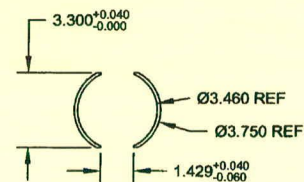
**D3391-1 TUBE**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



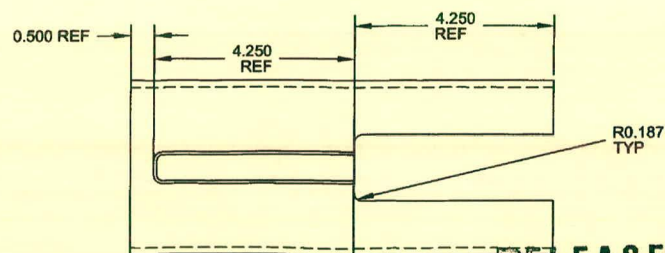
**SECTION C-C**



**SECTION D-D**



**SECTION E-E**



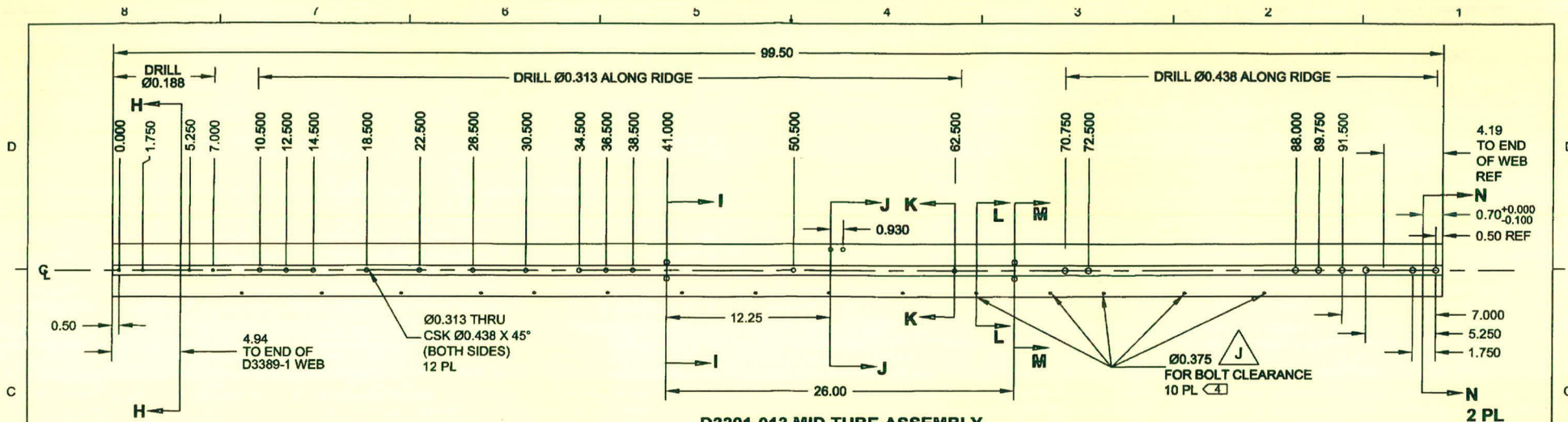
**VIEW F-F**  
SCALE 2X

**RELEASED**  
2016-04-28

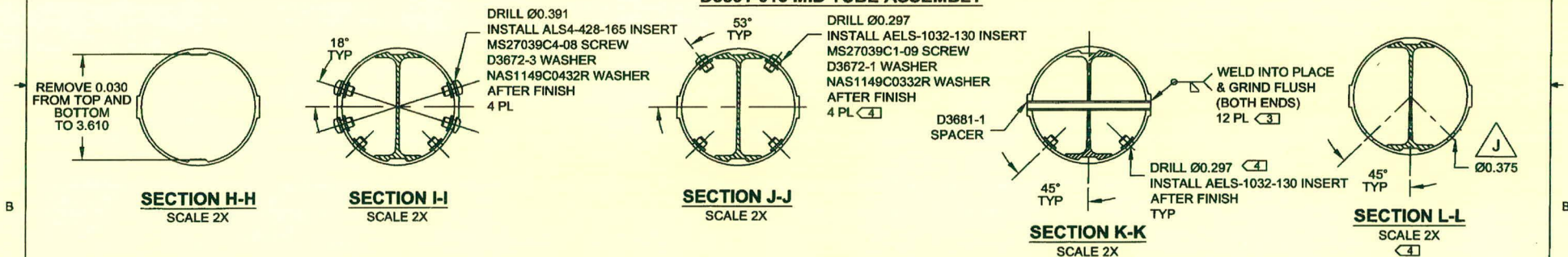
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|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | PH       | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                                                             |               |
| DRAWN      | ML       | EUGENE, OR                                                                                                                                                                                                                                                                                                 |               |
| CHECKED    | CP       | DRAWING NO.                                                                                                                                                                                                                                                                                                | REV. J        |
| MFG. APPR. | DE       | D3391                                                                                                                                                                                                                                                                                                      | SHEET 5 OF 11 |
| APPROVED   |          | TITLE                                                                                                                                                                                                                                                                                                      | SCALE         |
| DE APPR.   |          | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                                                         | NTS           |
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### D3391-013 MID TUBE ASSEMBLY



#### D3391-013 MID TUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER   | DESCRIPTION       |
|-----|---------------|-------------------|
| X   | D3391-013     | MID TUBE ASSEMBLY |
| 1   | D2500-1-100   | EXTRUSION         |
| 1   | D3389-1       | WEB               |
| 4   | D3672-1       | WASHER            |
| 4   | D3672-3       | WASHER            |
| 12  | D3681-1       | SPACER            |
| 24  | AELS-1032-130 | INSERT            |
| 4   | ALS4-428-165  | INSERT            |
| 4   | MS27039C1-09  | SCREW             |
| 4   | MS27039C4-08  | SCREW             |
| 4   | NAS1149C0332R | WASHER            |
| 4   | NAS1149C0432R | WASHER            |



#### D3391-013 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

#### SECTION N-N SCALE 2X

|            |                    |
|------------|--------------------|
| DESIGN     | PH                 |
| DRAWN      | ML                 |
| CHECKED    | CP                 |
| MFG. APPR. | <i>[Signature]</i> |
| APPROVED   | <i>[Signature]</i> |
| DE APPR.   | <i>[Signature]</i> |
| DATE       | 16.01.14           |

#### DART AEROSPACE USA, INC EUGENE, OR

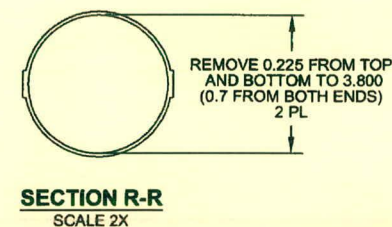
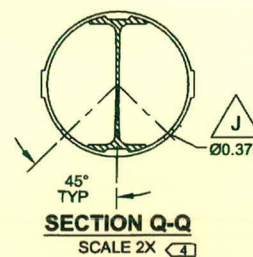
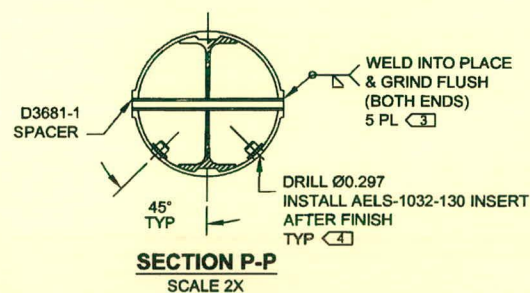
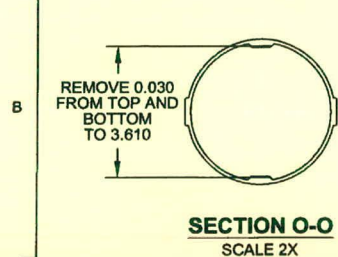
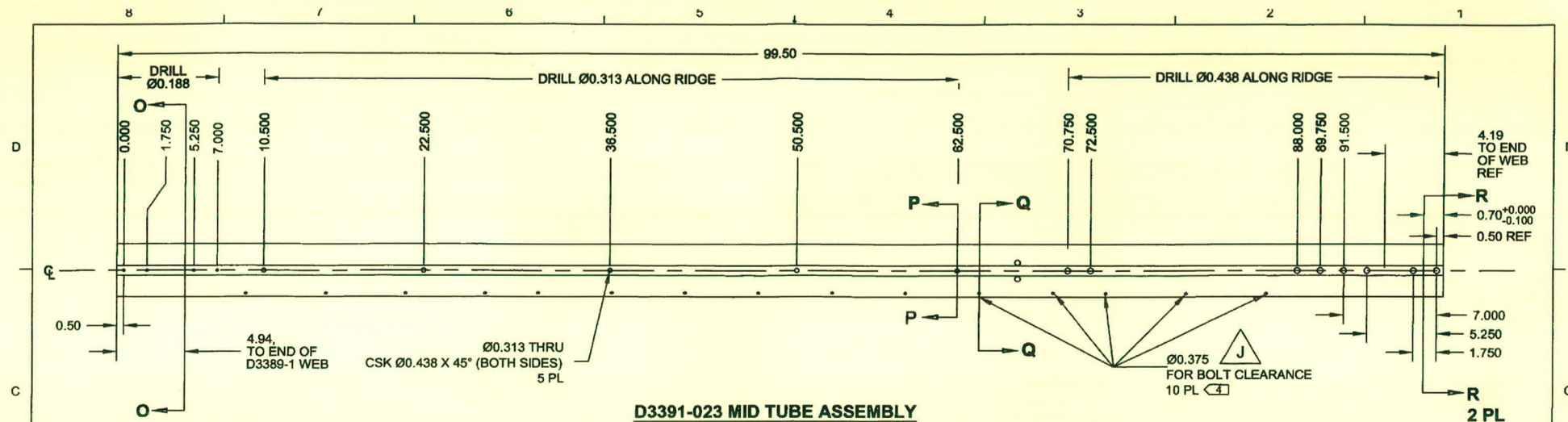
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|--------------------|---------------|
| DRAWING NO.        | REV. J        |
| D3391              | SHEET 6 OF 11 |
| TITLE              | SCALE         |
| 412 FLOAT SKIDTUBE | NTS           |

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2016-04-28







# **D3391-023 MID TUBE ASSEMBLY PARTS LIST**

| QTY -023 | PART NUMBER   | DESCRIPTION       |
|----------|---------------|-------------------|
| X        | D3391-023     | MID TUBE ASSEMBLY |
| 1        | D2500-1-100   | EXTRUSION         |
| 1        | D3389-1       | WEB               |
| 5        | D3681-1       | SPACER            |
| 20       | AELS-1032-130 | INSERT            |



## **D3391-023 MID TUBE ASSEMBLY**

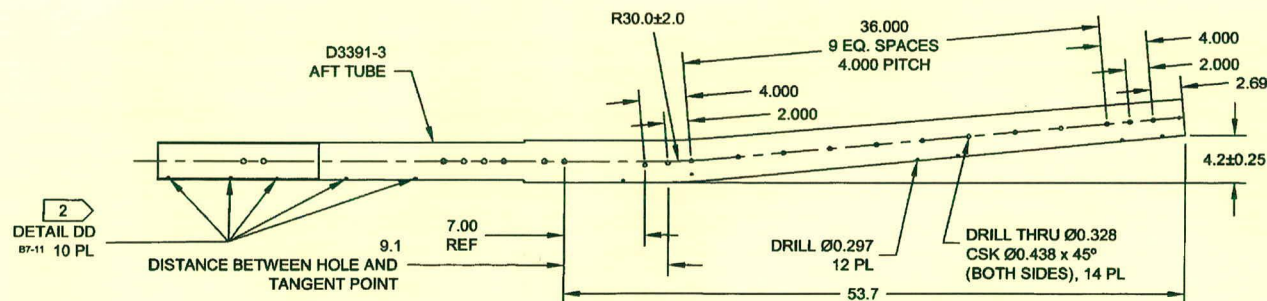
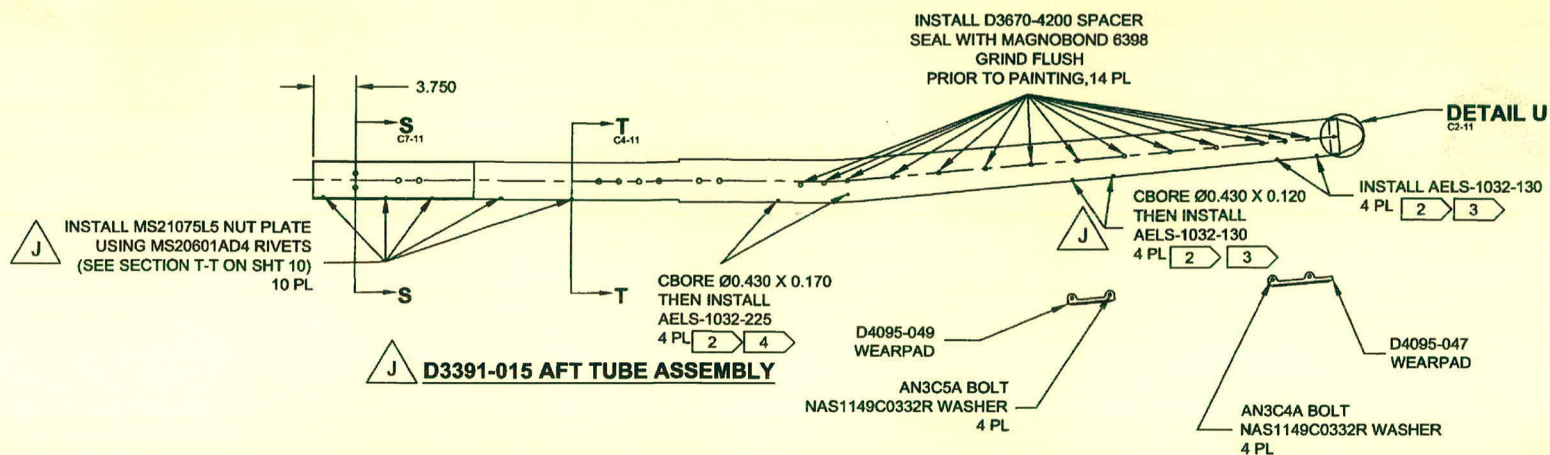
- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

|            |          |                                             |               |
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| DESIGN     | PH       | <b>DART AEROSPACE USA, INC</b>              |               |
| DRAWN      | ML       | EUGENE, OR                                  |               |
| CHECKED    | CP       | DRAWING NO.                                 | REV. J        |
| MFG. APPR. |          | D3391                                       | SHEET 7 OF 11 |
| APPROVED   |          | TITLE                                       | SCALE         |
| DE APPR.   |          | 412 FLOAT SKIDTUBE                          | NTS           |
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2016-04-28







# D3391-015 AFT TUBE ASSEMBLY PARTS LIST

| QTY  | PART NUMBER   | DESCRIPTION         |
|------|---------------|---------------------|
| -015 |               |                     |
| X    | D3391-015     | AFT TUBE ASSEMBLY   |
| 1    | D2646         | AFT CAP             |
| 1    | D3391-3       | AFT TUBE            |
| 14   | D3670-4200    | SPACER              |
| 2    | D3672-1       | WASHER              |
| 1    | D4095-049     | WEARPAD             |
| 1    | D4095-047     | WEARPAD             |
| 8    | AELS-1032-130 | INSERT              |
| 4    | AELS-1032-225 | INSERT              |
| 4    | AL54-428-165  | INSERT              |
| 6    | AN3C4A        | BOLT                |
| 4    | AN3C5A        | BOLT                |
| 20   | MS20601AD4    | RIVET, BLIND        |
| 10   | MS21075L5     | NUT PLATE, FLOATING |
| 10   | NAS1149C0332R | WASHER              |

## NOTES:

- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

## BENDING AND DRILLING DETAIL

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|                                                                                                                                                                                                                                     |                                                                                       |                                             |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------|---------------|
| DESIGN                                                                                                                                                                                                                              | PH                                                                                    | DART AEROSPACE USA, INC                     |               |
| DRAWN                                                                                                                                                                                                                               | ML                                                                                    | EUGENE, OR                                  |               |
| CHECKED                                                                                                                                                                                                                             | CP                                                                                    | DRAWING NO.                                 | REV. J        |
| MFG. APPR.                                                                                                                                                                                                                          |  | D3391                                       | SHEET 8 OF 11 |
| APPROVED                                                                                                                                                                                                                            |                                                                                       | TITLE                                       | SCALE         |
| DE APPR.                                                                                                                                                                                                                            |  | 412 FLOAT SKIDTUBE                          | NTS           |
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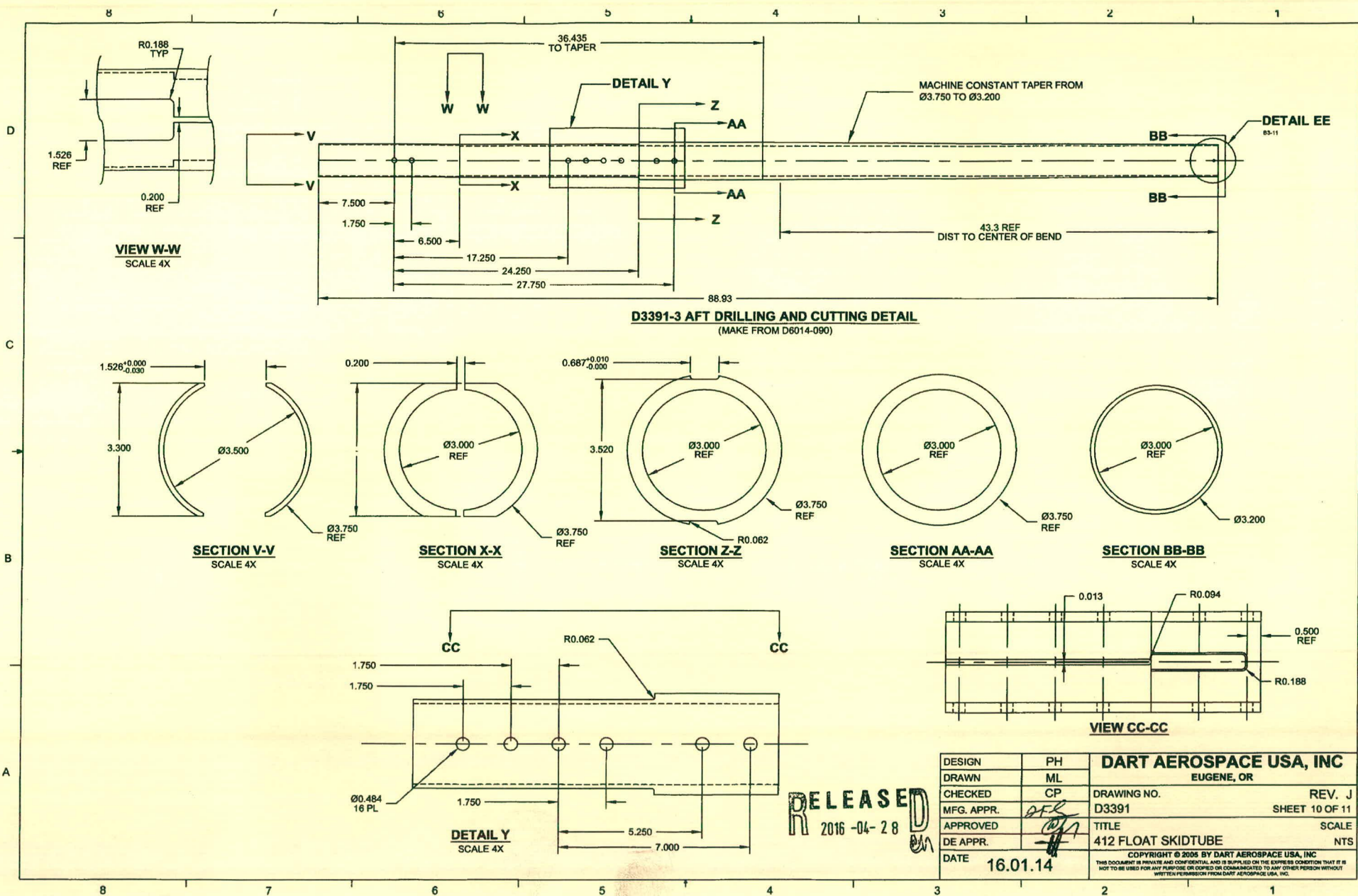








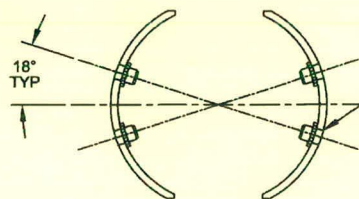




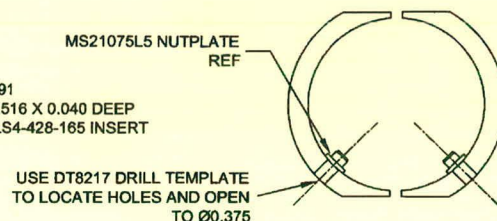
|            |                    |                                                                                                                                                                                                                                                                                                    |                |
|------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| DESIGN     | PH                 | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                                                     |                |
| DRAWN      | ML                 | EUGENE, OR                                                                                                                                                                                                                                                                                         |                |
| CHECKED    | CP                 | DRAWING NO.                                                                                                                                                                                                                                                                                        | REV. J         |
| MFG. APPR. | <i>DEF</i>         | D3391                                                                                                                                                                                                                                                                                              | SHEET 10 OF 11 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                                              | SCALE          |
| DE APPR.   | <i>[Signature]</i> | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                                                 | NTS            |
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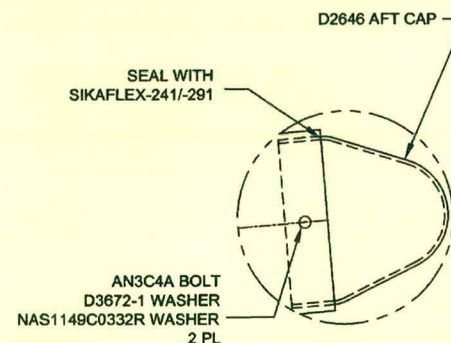




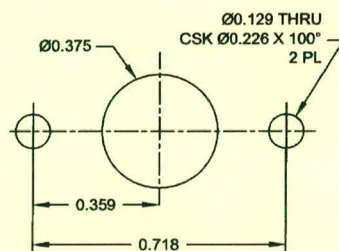
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SCALE 5X



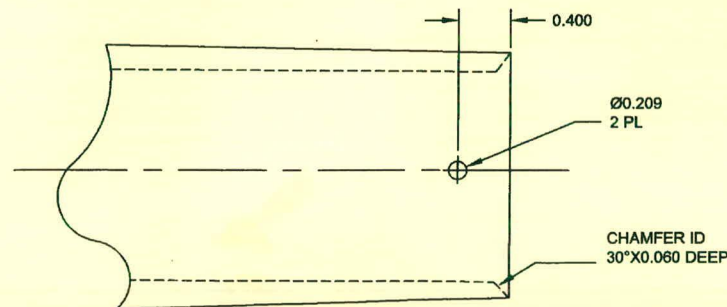
**SECTION T-T** D5-8.9  
SCALE 5X  
5 PL



**DETAIL U** D1-8.9  
SCALE 5X



**DRILLING DETAIL DD** J  
SCALE 10X  
D7-8.9



**DETAIL EE** J  
SCALE 2X  
D1-11

**NOTES:**  
1) USE INDUSTRY STANDARD NUT PLATE DRILL JIG IF REQUIRED.

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| DRAWN      | ML       | EUGENE, OR                                                                                                                                                                                                                                                                         |                |
| CHECKED    | CP       | DRAWING NO.                                                                                                                                                                                                                                                                        | REV. J         |
| MFG. APPR. | YR       | D3391                                                                                                                                                                                                                                                                              | SHEET 11 OF 11 |
| APPROVED   | AN       | TITLE                                                                                                                                                                                                                                                                              | SCALE          |
| DE APPR.   | CH       | AFT TUBE ASSEMBLY                                                                                                                                                                                                                                                                  | NTS            |
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